Data Structures

Practical 8

Objective:

WAP to Implement **Binary Search** algorithm.

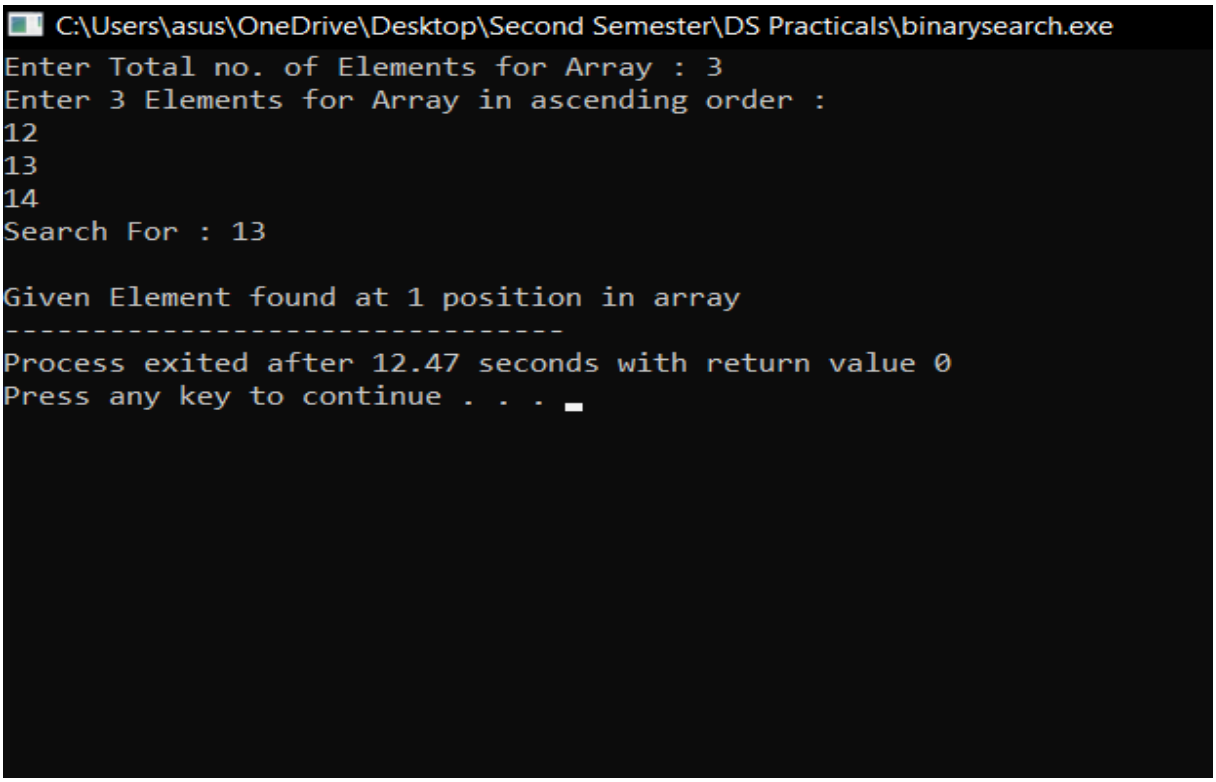
Code:

```
#include<stdio.h>
int binarySearch(int arr[],int n, int key){
   int s=0;
   int e=n-1;
   while(s<=e){
      int mid = (s+e)/2;
      if(arr[mid]>key){
         e=mid-1;
      }
      else if(arr[mid]<key){
         s=mid;
      }
      else{
         return mid;
      }
   }
   return -1;
}
```

```
int main()
{
    int n;
    int key;
    printf("Enter Total no. of Elements for Array : ");
    scanf("%d",&n);
    int arr[n];
    printf("Enter %d Elements for Array in ascending order : \n",n);
    for(int i=0;i<n;i++){
        scanf("%d",&arr[i]);
    }
    printf("Search For : ");
    scanf("%d",&key);

    if(arr[binarySearch(arr,n,key)]==key){
        printf("\nGiven Element found at %d position in array",binarySearch(arr,n,key));
    }
    else{
        printf("\nElement Not Found!!");
    }
}
```

Output:


C:\Users\asus\OneDrive\Desktop\Second Semester\DS Practicals\binarysearch.exe
Enter Total no. of Elements for Array : 3
Enter 3 Elements for Array in ascending order :
12
13
14
Search For : 13
Given Element found at 1 position in array
Process exited after 12.47 seconds with return value 0
Press any key to continue . . .